

**COMPLETE CLAIM SET WITH CURRENT
AMENDMENTS SHOWN IN REDLINE FORM**

1. (amended herein) A method for improving voice recognition accuracy when a user submits a search query by voice to search a domain of items, the method comprising:

prompting a user to submit a set of characters of a voice query for searching the domain of items, and receiving the set of characters from the user, wherein the voice query is an utterance by the user of a search query, and the set of characters defines a portion of the search query;

in response to receiving the set of characters from the user, identifying a subset of items in the domain that correspond to the set of characters;

generating a dynamic grammar based at least in part on the subset of items, said grammar specifying valid utterances for interpreting the voice query;

prompting the user to submit the voice query, and receiving the voice query from the user; and

interpreting the voice query using the dynamic grammar.

2. (original) The method as in Claim 1, wherein prompting a user to submit a set of characters comprises prompting the user to submit the first N characters of a query term, where N is greater than 1.

3. (original) The method as defined in Claim 1, wherein prompting a user to submit a set of characters comprises prompting the user to submit a set of characters of an author's name.

4. (original) The method as defined in Claim 3, wherein generating a dynamic grammar comprises incorporating into the grammar names of authors of the items within the subset of items.

5. (original) The method as defined in Claim 4, wherein the dynamic grammar consists essentially of the names of the authors of the items within the subset of items.

6. (original) The method as defined in Claim 4, further comprising incorporating into the dynamic grammar non-author terms extracted from the subset of items.

7. (original) The method as defined in Claim 1, wherein prompting a user to submit a set of characters comprises prompting the user to select the characters on a telephone keypad.

8. (original) The method as defined in Claim 7, wherein prompting a user to submit a set of characters further comprises prompting the user to utter the characters, and wherein receiving the set of characters comprises using the keypad entries of the characters to interpret utterances by the user of the characters.

9. (original) The method as defined in Claim 1, wherein generating a dynamic grammar comprises extracting text from the subset of items.

10. (original) The method as defined in Claim 9, wherein extracting text from the subset of items comprises extracting the text from a database field corresponding to a search context of the query.

11. (original) The method as defined in Claim 1, further comprising storing the dynamic grammar within a cache for subsequent use.

12. (original) The method as defined in Claim 1, wherein prompting a user to submit a set of characters comprises prompting the user to enter a fixed number of characters, wherein the fixed number is selected based on a target grammar size.

13. (original) The method as defined in Claim 1, wherein receiving the set of characters comprises determining in real time whether a number of entered characters is sufficient to produce a grammar that falls below a threshold size.

14. (original) The method as defined in Claim 1, further comprising:

executing a search using the voice query as interpreted using the dynamic grammar to identify a set of search result items;

providing the user an option to add an additional query term to the voice query to refine the search;

generating a second dynamic grammar at least in part from the set of search result items; and

receiving a voice entry of the additional query term from the user, and interpreting the voice entry using the second dynamic grammar.

15. (amended herein) A method for improving voice recognition accuracy when a user submits a query by voice to search a domain of items, the method comprising:

receiving a set of characters entered by a user, the set of characters representing a portion of a query;

in response to receiving the set of characters, selecting a grammar which is derived at least in-part from text extracted from a subset of items that correspond to the set of characters entered by the user; and

providing the grammar to a voice recognition system for use in interpreting the query as entered by the user by voice;

whereby the user's entry of a subset of characters of the query, together with the user's utterance of the full query, are used in combination to capture the query.

16. (original) The method as defined in Claim 15, wherein selecting a grammar comprises:

executing an initial search to identify the subset of items that correspond to the set of characters; and

extracting text from the subset of items for incorporation into the grammar.

17. (original) The method as defined in Claim 16, wherein extracting text from the subset of items comprises extracting the text from a database field corresponding to a search context of the query.

18. (original) The method as defined in Claim 17, wherein the search context comprises an author search, and the database field is an author field.

19. (original) The method as defined in Claim 15, wherein selecting a grammar comprises reading a previously generated grammar from memory based on the set of characters entered by the user.

20. (original) The method as in Claim 15, wherein receiving a set of characters comprises receiving the first N characters of a query term, where N is greater than 1.

21. (original) The method as in Claim 15, wherein receiving a set of characters comprises receiving characters entered at least in-part using a telephone keypad.

22. (original) The method as in Claim 15, wherein receiving a set of characters comprises using a telephone keypad entry of a character by the user to interpret an utterance of the character by the user.

23. (original) The method as defined in Claim 15, wherein receiving a set of characters comprises determining in real time whether a number of entered characters is sufficient to produce a grammar that falls below a threshold size.

24. (amended herein) A system for conducting searches by voice, comprising:

a database of items;

a query server which searches the database of items according to voice queries from users, the query server coupled to a voice recognition system which interprets the voice queries according to grammars;

a first code module which causes a user to be prompted to enter a set of characters of a query such that the user may partially specify the query; and

a second code module which causes the user to be prompted to utter the query;

wherein the query server is programmed to use the set of characters to select a grammar for use by the voice recognition system to interpret the query as uttered by the user.

B 25. (original) The system as defined in Claim 24, wherein the first and second code modules comprise voiceXML coding.

26. (original) The system as defined in Claim 24, wherein the query server selects the grammar by at least:

executing a preliminary search to identify a subset of items that match the set of characters; and

extracting text from the subset of items to incorporate into grammar.

27. (original) The system as defined in Claim 26, wherein the query server is programmed to extract author names from the subset of items to generate a grammar for performing a voice-based author search.

28. (original) The system as defined in Claim 24, wherein the query server is programmed to select the grammar from memory using the set of characters.

29. (original) The system as defined in Claim 24, wherein the set of characters is a set of the first N letters of a query term, where N is greater than 1.

30. (original) The system as defined in Claim 29, wherein the query term is a name of an author.

31. (original) The system as defined in Claim 29, wherein N is selected based on a target grammar size.

Appl. No. : 09/650,173
Filed : August 29, 2000

32. (original) The system as defined in Claim 24, wherein the first code module prompts the user to both utter, and enter on a telephone keypad, each alphabetic character of the set.

33. (amended herein) A method of assisting users in locating items in a database using voice queries, the method comprising:

receiving a voice query from a user, and identifying a set of search result items that are responsive to the voice query;

providing the user an option to refine the query by adding an additional query term;

generating a grammar ~~by~~ at least in-part by extracting text from the set of search result items; and

using the grammar to interpret an utterance by the user of an additional query term.

34. (original) The method as defined in Claim 33, wherein generating a grammar comprises extracting text from a database field corresponding to a search context of the query.

35. (original) The method as defined in Claim 33, wherein using the grammar to interpret an utterance comprises using the grammar to interpret utterances of multiple additional query terms by the user.

36. (original) The method as defined in Claim 33, wherein the grammar is generated in response to selection by the user of the option to add an additional query term.

37. (original) The method as defined in Claim 33, wherein the option to refine the query is presented to the user only if the number of items in the set exceeds a predefined threshold.

38. (original) The method as defined in Claim 33, further comprising storing the grammar in a cache for use with subsequent query submissions.

39. (previously presented) The method as in Claim 1, wherein the set of characters is a subset of the characters contained in a textual representation of the voice query.

40. (previously presented) A system that operates according to the method of Claim 1.

41. (previously presented) A system that operates according to the method of Claim 15.

42. (previously presented) A system that operates according to the method of Claim 33.

43. (amended herein) A method for facilitating database searches conducted over a telephone, the method comprising:

prompting a user to depress a sequence of telephone keypad keys corresponding to a sequence of characters ~~contained within~~ of a query term of a search query, and identifying a resulting sequence of keys depressed by the user;

prompting the user to utter the search query by voice, and receiving a resulting voice utterance from the user; and

interpreting the voice utterance using a voice recognition grammar that corresponds to the sequence of keys depressed by the user, said voice recognition grammar specifying valid utterances.

44. (previously presented) The method of Claim 43, wherein the search query consists of said query term.

45. (previously presented) The method of Claim 43, wherein the search query contains multiple query terms.

46. (previously presented) The method of Claim 43, further comprising prompting the user to utter said sequence of characters by voice, and using resulting voice utterances of the characters in combination with the sequence of keys depressed by the user to identify the sequence of characters intended by the user.

47. (previously presented) The method of Claim 43, further comprising selecting the voice recognition grammar from a repository of previously-generated voice recognition grammars in which different voice recognition grammars correspond to different sequences of characters.

48. (previously presented) The method of Claim 43, further comprising generating the voice recognition grammar on-the-fly based on input from the user.

49. (previously presented) A system that operates according to the method of Claim 43.

50. (previously presented) A method of capturing a search query specified by a user by telephone, the method comprising:

receiving from the user an indication of a subset of the characters contained in the search query, said indication of the subset of characters being specified at least in part as telephone keypad entries;

receiving from the user a voice utterance that represents the entire search query;
and

interpreting the voice utterance using a voice recognition grammar that corresponds to the indication of the subset of characters, said voice recognition grammar specifying valid utterances.

51. (previously presented) The method of Claim 50, wherein the indication of the subset of characters further comprises respective voice utterances of the characters in the subset.

52. (previously presented) The method of Claim 50, further comprising selecting the voice recognition grammar from a repository of previously-generated voice recognition grammars in which different voice recognition grammars correspond to different sets of characters.

b 53. (previously presented) The method of Claim 50, further comprising generating the voice recognition grammar on-the-fly in response to input from the user.

54. (previously presented) The method of Claim 50, further comprising executing a database search using a textual representation of the voice utterance.

55. (previously presented) A system that operates according to the method of Claim 50.
